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⑯ **Bottle carrier device.**

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**EP-A- 0 171 947**  
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### Description

This invention relates generally to a container carrier device designed for packaging bottles or other containers of a conventional type including a generally cylindrical reduced neck portion diverging into a larger body portion. The neck portion has openings which may be closed by various types of cap or closure. The bottles or containers are typically arranged in a rank-and-row relationship usually in two parallel rows of three ranks.

Several efforts have been made to produce a carrier device for such bottles. Typical of such efforts are paperboard wrap-around or partial wrap-around carrier devices. Other efforts include a top-grouping carrier of plastics material or cardboard. Other packaging uses a two-part device such as a band member around the periphery of the array in conjunction with a flexible resilient plastics member associated with and connecting the necks of the bottles.

A recent proposal for a carrier device for such bottles is described in our specification EP-A-0 171 947 which describes a carrier device for connecting together a plurality of containers having cylindrical body regions and reduced diameter neck portions, the carrier device being formed from a resilient elastic deformable sheet of plastics material and comprising a plurality of integrally connected annular bands defining ranks and rows of apertures disposed along a longitudinal axis, the rows being situated on opposite sides of the longitudinal axis and the ranks being transversely disposed to the longitudinal axis, with the overall length of the carrier device being substantially the same as the length of the array of containers to be connected together, and a pair of handle means extending from an inner margin and diagonally opposed apertures.

Whilst such a carrier device represents an improvement over the conventional prior art devices, the handle means are limited in length making them difficult for the user to grip and hold. However, since the handle means are formed by part of the blank which already extends substantially all the way around the inside of the container receiving apertures it is difficult to see how their length can be increased without increasing the peripheral length of the apertures. This cannot be done because then they would not grip the containers.

According to a first aspect of this invention such a carrier device has the apertures in one rank elongated in a direction transverse to the longitudinal axis and the apertures in adjacent ranks elongated in the direction of the longitudinal axis so that the overall length of the carrier device is maintained as the length of the apertures is increased to increase the length of the handle means.

According to another aspect of this invention a package comprises a carrier device according to the one aspect of this invention and a plurality of containers having cylindrical body portions and reduced diameter neck portions arranged in an array of rows and ranks, the carrier device being located with its annular bands around and elastically gripping the cylindrical portions of the containers and the handle means extending upwards away from the remainder of the carrier device towards the tops of the containers.

Preferably the outer rank apertures of the carrier device extend longitudinally whilst the apertures in the middle rank of the device extend transversely. This creates a carrier device which has a total length which is acceptable to a conventional carrier applicating machine. The handle means are located in the diagonally opposed outer rank apertures and so are similarly longitudinally extended so that they are longer which makes them easier to grasp.

Preferably the elongate apertures are at least twice as long as they are wide.

A further advantage of the preferred carrier is that the inner edges of the interconnecting bands of the end apertures tighten the package in the lateral direction, whilst the inner edges of the interconnecting bands of the middle apertures tighten the package in the longitudinal direction, thereby creating a united package of standard length and width.

A particular example of a carrier in accordance with this invention will now be described with reference to the accompanying drawings; in which:-

Figure 1 is a plan;

Figure 2 is a side elevation of a package comprising the carrier device and bottles;

Figure 3 is a top plan view of the package; and, Figure 4 is an enlarged fragmentary sectional view taken along lines 4-4 shown in Figure 1.

Referring now to Figure 1, a carrier device 10, is shown and includes a plurality of outer or end apertures 12 and 13 and a plurality of middle apertures 14 arranged generally in ranks and rows.

The carrier 10 is formed from a sheet of tough elastic plastic material. The apertures 12 and 13 are defined by annular band 16 and the apertures 14 are defined by annular band 18. These bands are integrally connected along longitudinally and laterally extending webs or junction lines 20 and 22. The band 16 has intermediate substantially straight section 17 extending longitudinally of the carrier 10 and the band 18 has intermediate substantially straight section 19 extending transversely of the carrier for the purpose described below. The carrier device 10 typically is provided with three lateral ranks of two longitudinal rows of apertures and bands, but can be made with any desired

number of ranks and rows.

In order to more clearly define the orientation of the elements, the longitudinal axis is shown on Fig. 1 and is designated A<sub>1</sub>. A plurality of transverse or rank axes A<sub>2</sub>, A<sub>3</sub> and A<sub>4</sub> are also shown in Fig. 1 as bisecting each rank. It should be apparent that longitudinal web means 20 is situated on the longitudinal axis A<sub>1</sub>, and connects adjacent pairs of apertures in a given rank while lateral webs 22 connect adjacent pairs of apertures in a given row.

One aperture in each of the outer ranks includes handle means 24 and 26 integrally connected and emanating from the radially inner most quadrant thereof, between the longitudinal web means 20 and lateral web means 22. The handle means 24 and 26 are located in diagonally opposing outer rank apertures 12. It should be noted that the other pair of diagonally opposed outer rank apertures 13 have force compensating enlargements or webs 21 and 23 emanating from the radially inner most quadrant thereof at the junction between the longitudinal web means 20 and the lateral web means 22. The force compensating web members serve to stabilize stretching forces during assembly.

The handle means 24 and 26 are of oblong design and include a flat annular band means 28 which is connected to the margins of apertures 12 by hinge means 32 and a frangible strap connection 33. The frangible strap means tears easily so the handle means can bend around the hinge lines 32 as the carrier device is applied to the containers associated therewith.

As shown in Fig. 1, apertures 12 and 13 in the outer ranks are elongated in the direction of the longitudinal axis. The elongation of the apertures 12 and 13 allows longer handle means 24 and 26 to be created. The apertures 14 in the middle ranks are elongated in a transverse direction so that the total length of carrier device is substantially the same as the total length of the array of bottles that must be associated with the carrier device and the applying machine. It should be noted that the outer rank apertures are substantially the same size and length, while the middle rank apertures are substantially the same size and length.

In assembly, the carrier device 10 is stretched over bottles 34 which have been placed in a close array defined by rows and ranks. The bottles 34 include a body 36 joined to a neck portion 38 of greatly reduced diameter by a transitional shoulder means 40. The neck region includes an opening which is sealed by conventional cap means 42. The carrier device 10 is forced downwardly until it is positioned about midway of the body portion 36 of the bottles 34 to provide the necessary frictional holding power and holding stability for the package.

As the carrier device is stretched over the bottles 34 the straight sections 17 of the band 16 create a stretch which tends to tighten the package in the lateral direction and the straight sections of the band 18 tend to tighten the package in the longitudinal direction, thereby creating a tight package. As the carrier device 10 is forced downwardly over the bottles 34, suitable means not shown, enable the handle means 24 and 26 to be pushed up out of the diagonally opposed outer rank apertures 12 and 13 and into an upright position as shown in Figs. 2 and 3. The frangible strap means 33 tears easily in assembly allowing the handle means 24 and 26 to bend around the hinge means 32.

As shown in Fig. 4 the surface of handle means 24 and 26 opposite said hinge lines 32 are coined to form grooves or fold line 42. The grooves or fold lines 42 enable the inner margin of the handle means 24 and 26 to fold over to provide a double thickness for easier use.

### Claims

1. A carrier device (10) for connecting together a plurality of containers (34) having cylindrical body regions (36) and reduced diameter neck portions (38), the carrier device (10) being formed from a resilient elastic deformable sheet of plastics material and comprising a plurality of integrally connected annular bands (16, 18) defining ranks and rows of apertures (12, 13, 14) disposed along a longitudinal axis (A<sub>1</sub>), the rows being situated on opposite sides of the longitudinal axis (A<sub>1</sub>), the ranks being transversely disposed to the longitudinal axis (A<sub>1</sub>), with the overall length of the carrier device being substantially the same as the length of the array of containers to be connected together, and a pair of handle means (24, 26) extending from an inner margin of diagonally opposed apertures (12), characterised in that the apertures (14) in one rank are elongated in a direction transverse to the longitudinal axis (A<sub>1</sub>) and that the apertures (12, 13,) in adjacent ranks are elongated in the direction of the longitudinal axis (A<sub>1</sub>), so that the overall length of the carrier device (10) is maintained as the length of the apertures (12, 13, 14) is increased to increase the length of the handle means (24, 26).
2. A carrier device according to claim 1 in which the length of the apertures (12, 13, 14) is at least twice as long as their width.
3. A carrier device according to claim 1 or 2, in which the handle means (24, 26) are located in diagonally opposed outer rank apertures (12)

which are elongated in the direction of the longitudinal axis (A<sub>1</sub>), the handle means (24, 26) are oblong and comprise a flat annular band (28) which is connected to an innermost quadrant of the margin of a longitudinally elongate aperture (12, 13) by hinge means (32) and to a spaced portion of the margin by a frangible strap connection.

4. A carrier device according to claim 3, wherein a curved portion of the handle means opposite from the hinge means is coined to define a fold line (42).
5. A carrier device according to claim 3 or 4, wherein a force compensating web (21, 23) extends from an inner margin of the longitudinally elongated apertures (12, 13) adjacent those including the handle means (24, 26).
6. A carrier device according to any one of the preceding claims, wherein the integrally connected bands (16) defining the longitudinally elongate apertures (12, 13) have an intermediate substantially straight section (20) extending along the longitudinal axis (A<sub>1</sub>) and the integrally connected bands (18) defining the transversely elongate apertures (14) have an intermediate substantially straight section (22) extending transversely to the longitudinal axis (A<sub>1</sub>).
7. A carrier device according to any one of the preceding claims, wherein all of the longitudinally elongate apertures (12, 13) are substantially identical in size and shape.
8. A carrier device according to any one of the preceding claims, wherein all of the transversely elongate apertures (14) are substantially identical in size and shape.
9. A package comprising a carrier device (10) according to any one of the preceding claims and a plurality of containers (34) having cylindrical body portions (36) and reduced diameter neck portions (38) arranged in an array of rows and ranks, the carrier device being located with its annular bands (16, 18) around and elastically gripping the cylindrical portions (36) of the containers (34) and the handle means (24, 26) extending upwards away from the remainder of the carrier device (10) towards the tops of the containers (34).
10. A package according to claim 9, wherein the total length of the carrier device before application is substantially the same as the length

of the array of containers associated with it.

#### Patentansprüche

5. 1. Trägeranordnung (10) zum Miteinanderverbinden von mehreren Behältern (34), die zylindrische Körperabschnitte (36) und im Durchmesser reduzierte Halsabschnitte (38) aufweisen, wobei die Trägeranordnung (10) aus einer federnd elastischen, deformierbaren Kunststofffolie besteht und mehrere einteilig verbundene, ringförmige Bänder (16, 18) aufweist, die Zeilen und Reihen von entlang einer Längsachse (A<sub>1</sub>) angeordneten Öffnungen (12, 13, 14) definieren, die Zeilen auf gegenüberliegenden Seiten der Längsachse (A<sub>1</sub>) und die Reihen quer zur Längsachse (A<sub>1</sub>) angeordnet sind, die Gesamtlänge der Trägeranordnung im wesentlichen der Länge der Gruppe von Behältern entspricht, die miteinander zu verbinden sind, und ein Paar von Handgriffleinrichtungen (24, 26) sich von einem inneren Rand von diagonal gegenüberliegenden Öffnungen (12) erstreckt, dadurch gekennzeichnet, daß die Öffnungen (14) von einer Reihe sich in einer Richtung quer zur Längsachse (A<sub>1</sub>) ausdehnen, und daß die Öffnungen (12, 13) von benachbarten Reihen sich in Richtung der Längsachse ausdehnen, so daß die Gesamtlänge der Trägeranordnung (10) erhalten bleibt, wenn die Länge der Öffnungen (12, 13, 14) erhöht wird zur Vergrößerung der Länge der Handgriffleinrichtungen (24, 26).
10. 2. Trägeranordnung nach Anspruch 1, worin die Länge der Öffnungen (12, 13, 14) wenigstens doppelt so lang wie breit sind.
15. 3. Trägeranordnung nach Anspruch 1 oder 2, worin die Handgriffleinrichtungen (24, 26) in diagonal gegenüberliegenden, in Richtung der Längsachse (A<sub>1</sub>) ausgedehnten Öffnungen (12) der äußeren Reihen angeordnet sind, wobei die Handgriffleinrichtungen (24, 26) rechteckig sind und ein flaches ringförmiges Band (28) aufweisen, das mit einem innersten Quadranten des Randes einer längs ausgedehnten Öffnung (12, 13) mittels eines Anlenkmittels (32) und mit einem beabstandeten Abschnitt des Randes mittels eines abreibbaren Verbindungsstücks verbunden ist.
20. 4. Trägeranordnung nach Anspruch 3, worin ein gebogener Abschnitt der Handgriffleinrichtung gegenüber dem Anlenkmittel zur Bildung einer Faltlinie (42) eingraviert ist.
25. 5. Trägeranordnung nach Anspruch 3 oder 4, wor-

in ein Steg (21, 23) zur Kraftkompenierung sich von einem inneren Rand d rjenigen längs ausgedehnten Öffnungen (12, 13) erstreckt, die denen, welche die Handgriffeinrichtung n (24, 26) aufweisen, benachbart sind.

6. Trägeranordnung nach einem der vorangehenden Ansprüche, worin die einteilig verbundenen Bänder (16), welche die längs ausgedehnten Öffnungen (12, 13) definieren, einen im wesentlichen geraden, sich entlang der Längsachse (A<sub>1</sub>) erstreckenden Zwischenbereich (20) aufweisen, und die einteilig verbundenen Bänder (18), welche die quer ausgedehnten Öffnungen (14) definieren, einen im wesentlichen geraden, sich quer zu der Längsachse (A<sub>1</sub>) erstreckenden Zwischenbereich (22) aufweisen.

7. Trägeranordnung nach einem der vorangehenden Ansprüche, worin alle längs ausgedehnten Öffnungen (12, 13) im wesentlichen identisch in Größe und Form sind.

8. Trägeranordnung nach einem der vorangehenden Ansprüche, in dem alle quer ausgedehnten Öffnungen (14) im wesentlichen identisch in Größe und Form sind.

9. Verpackung mit einer Trägeranordnung (10) nach einem der vorangehenden Ansprüche und mit mehreren Behältern (34), die zylindrische Körperabschnitte (36) und im Durchmesser reduzierte Halsabschnitte (38) aufweisen, und die in einer Gruppe von Zeilen und Reihen angeordnet sind, wobei die Trägeranordnung mit ihren ringförmigen Bändern (16, 18) um die zylindrischen Abschnitte (38) der Behälter (34) angeordnet ist und diese elastisch erfaßt, und die Handgriffeinrichtungen (24, 26) sich nach oben von dem Rest der Trägeranordnung (10) weg zu den oberen Enden der Behälter (34) erstrecken.

10. Verpackung nach Anspruch 9, worin vor Anwendung die Gesamtlänge der Trägeranordnung im wesentlichen der Länge der Gruppe der zugeordneten Behälter entspricht.

**Revendications**

1. Dispositif de support (10) destiné à relier entre eux plusieurs récipients (34) ayant des zones de corps cylindriques (36) et des parties de col (38) de diamètre réduit, le dispositif de support (10) étant formé à partir d'une feuille de matière plastique élastique, résiliente et déformable et comprenant plusieurs bagues an-

5 nulaires (16, 18) reliées d'un seule pièce définissant des colonnes et des rangées d'ouvertures (12, 13, 14) disposées suivant un axe longitudinal (A<sub>1</sub>), les rangées étant situées sur des côtés opposés de l'axe longitudinal (A<sub>1</sub>), les colonnes étant disposées transversalement à l'axe longitudinal (A<sub>1</sub>), la longueur globale du dispositif de support étant sensiblement égale à la longueur de l'ensemble de récipients à relier entre eux, et deux moyens de poignée (24, 26) s'étendant depuis une marge intérieure d'ouvertures diagonalement opposées (12), caractérisé en ce que les ouvertures (14) situées dans une colonne sont allongées dans une direction transversale à l'axe longitudinal (A<sub>1</sub>) et les ouvertures (12, 13) situées dans des colonnes adjacentes sont allongées dans la direction de l'axe longitudinal (A<sub>1</sub>), afin que la longueur globale du dispositif (10) de support soit maintenue alors que la longueur des ouvertures (12, 13, 14) est augmentée pour augmenter la longueur des moyens de poignée (24, 26).

10 2. Dispositif de support selon la revendication 1, dans lequel la longueur des ouvertures (12, 13, 14) est au moins double de leur largeur.

15 3. Dispositif de support selon la revendication 1 ou 2, dans lequel les moyens de poignée (24, 26) sont situés dans des ouvertures diagonalement opposées (12) de colonnes extérieures, qui sont allongées dans la direction de l'axe longitudinal (A<sub>1</sub>), les moyens de poignée (24, 26) sont oblongs et comprennent une bague annulaire plate (28) qui est reliée à un quadrant, situé le plus à l'intérieur, de la marge d'une ouverture (12, 13), allongée longitudinalement, par un moyen de charnière (32), et à une partie espacée de la marge par une liaison à patte de rupture.

20 4. Dispositif de support selon la revendication 3, dans lequel une partie incurvée des moyens de poignée opposée au moyen de charnière est marquée pour définir une ligne de pliage (42).

25 5. Dispositif de support selon la revendication 3 ou 4, dans lequel un voile (21, 23) de compensation de force s'étend depuis une marge intérieure des ouvertures allongées longitudinalement (12, 13), adjacentes à celles comprenant les moyens de poignée (24, 26).

30 6. Dispositif de support selon l'une quelconque des revendications précédentes, dans lequel les bagues (16) reliées d'une seul pièce défini-

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nissant les ouvertures allongées longitudinalement (12, 13) ont une partie intermédiaire sensiblement droite (20) s'étendant suivant l'axe longitudinal (A<sub>1</sub>) et les bagues (18) reliées d'une seule pièce, définissant les ouvertures (14) allongées transversalement, ont une partie intermédiaire sensiblement droite (22) s'étendant transversalement à l'axe longitudinal (A<sub>1</sub>).

7. Dispositif de support selon l'une quelconque des revendications précédentes, dans lequel toutes les ouvertures allongées longitudinalement (12, 13) sont sensiblement identiques en dimension et en forme.

8. Dispositif de support selon l'une quelconque des revendications précédentes, dans lequel toutes les ouvertures (14) allongées transversalement sont sensiblement identiques en dimension et en forme.

9. Emballage comprenant un dispositif de support (10) selon l'une quelconque des revendications précédentes et plusieurs récipients (34) ayant des parties de corps cylindriques (36) et des parties de col (38) de diamètre réduit, disposés en un ensemble de rangées et de colonnes, le dispositif de support étant disposé de façon que ses bagues annulaires (16, 18) entourent et enserrent élastiquement les parties cylindriques (36) des récipients (34) et que les moyens de poignée (24, 26) s'élèvent depuis la partie restante du dispositif de support (10) vers les sommets des récipients (34).

10. Emballage selon la revendication 9, dans lequel la longueur totale du dispositif de support avant la pose est sensiblement égale à la longueur de l'ensemble de récipients qui lui est associé.

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